

PCT

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		(43) 国際公開日 2000年11月2日(02.11.00)
<p>(21) 国際出願番号 PCT/JP00/01943</p> <p>(22) 国際出願日 2000年3月29日(29.03.00)</p> <p>(30) 優先権データ 特願平11/117118 1999年4月23日(23.04.99) JP</p> <p>(71) 出願人(米国を除くすべての指定国について) 小松ゼノア株式会社(KOMATSU ZENOAH CO.)(JP/JP) 〒207-8788 東京都東大和市桜が丘2丁目142番地1 Tokyo, (JP)</p> <p>(72) 発明者; および (75) 発明者/出願人(米国についてのみ) 宮崎 浩(MIYAZAKI, Hiroshi)[JP/JP] 大辻孝昌(OTSUJI, Takamasa)[JP/JP] 〒207-8788 東京都東大和市桜が丘2丁目142番地1 小松ゼノア株式会社内 Tokyo, (JP)</p> <p>(74) 代理人 弁理士 松澤 統(MATSUZAWA, Osamu) 〒101-0047 東京都千代田区内神田1丁目11番10号 コハラビル Tokyo, (JP)</p>		(81) 指定国 AU, CA, CN, JP, US, 欧州特許 (DE, FR, GB, IT, SE) 添付公開書類 国際調査報告書
<p>(54) Title: STRATIFIED SCAVENGING TWO-STROKE CYCLE ENGINE</p> <p>(54)発明の名称 層状掃気2サイクルエンジン</p> <p>(57) Abstract A stratified scavenging two-stroke cycle engine which is increased in leading air sucking efficiency, simple in construction, and low in cost, comprising an exhaust port (22) and a scavenging port (21) connected to a cylinder chamber (10), a leading air sucking port (24) not connected to the cylinder chamber (10) and a crankcase (11), a mixture sucking port (23) connected to the crankcase (11), a scavenging flow path (20) connecting the scavenging port (21) to the crankcase (11), and a piston groove (25) which, in a suction stroke, connects the leading air sucking port (24) to the scavenging port (21) and does not connect the mixture sucking port (23) to the scavenging port (21) and provided in the outer peripheral part of a piston (4), wherein the leading air sucking port (24) is positioned on the opposite side of the mixture sucking port (23) relative to the axis of a cylinder (3).</p>		

*H. patenherau*

## 請求の範囲

1. エンジンのシリンダ室(10)に接続する排気ポート(22)及び掃気ポート(21)と、ピストン(4)の全ストロークにおいて前記シリンダ室(10)及びクランク室(11)に非接続な先導空気用吸気ポート(24)と、前記クランク室(11)に接続する混合気用吸気ポート(23)と、前記掃気ポート(21)及び前記クランク室(11)間を接続する掃気流路(20)と、吸入行程の際に、前記先導空気用吸気ポート(24)及び前記掃気ポート(21)間を接続し、かつ前記混合気用吸気ポート(23)及び前記掃気ポート(21)間を非接続とする、前記ピストン(4)の外周部に設けられるピストン溝(25)とを備え、前記先導空気用吸気ポート(24)、前記混合気用吸気ポート(23)及び前記掃気ポート(21)が前記ピストン(4)の上下動により開閉される層状掃気2サイクルエンジンにおいて、

前記先導空気用吸気ポート(24)は、前記シリンダ(3)の軸線に対し、前記混合気用吸気ポート(23)の反対側に位置していることを特徴とする層状掃気2サイクルエンジン。

2. 請求の範囲1記載の層状掃気2サイクルエンジンにおいて、

ピストン上死点で、

前記ピストン溝(25)は、前記排気ポート(22)と非接続であり、及び前記排気ポート(22)のピストン周方向の幅部分とはシリンダ(3)軸線方向に重ならない範囲でのピストン溝上縁(25a)は、排気ポート下縁(22a)よりもシリンダ(3)軸線方向のシリンダンヘッド(7)側に位置していることを特徴とする層状掃気2サイクルエンジン。

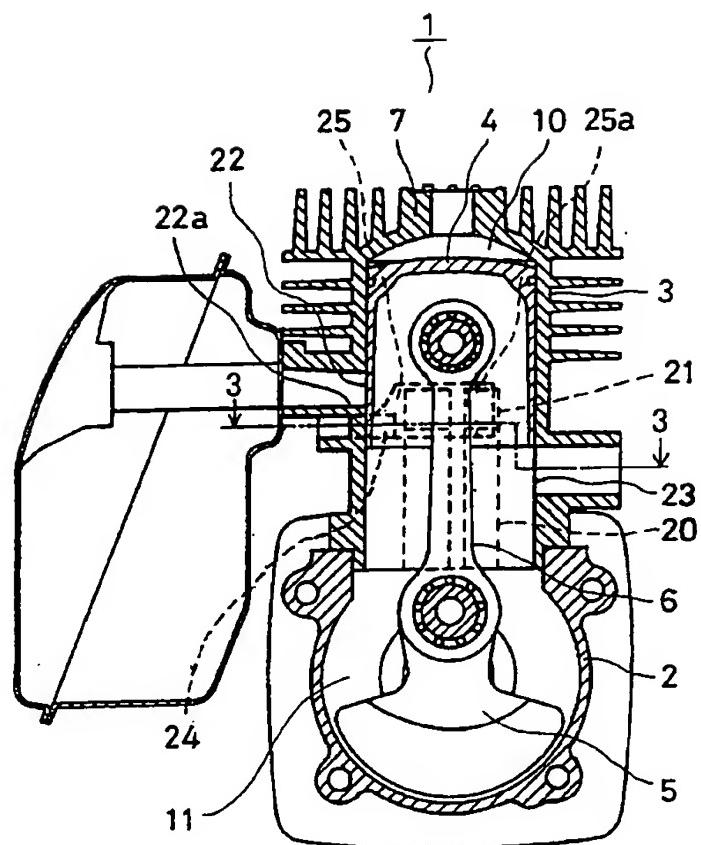
3. 請求の範囲1又は2記載の層状掃気2サイクルエンジンにおいて、

前記先導空気用吸気ポート(24)に密接して配設され、吸入空気量を調整する空気制御弁(30)を備えることを特徴とする層状掃気2サイクルエンジン。

4. 請求の範囲 3 記載の層状掃気 2 サイクルエンジンにおいて、  
前記空気制御弁(30a)のバルブボディ(31a)は、前記シリンダ(3)と一体成形で  
あることを特徴とする層状掃気 2 サイクルエンジン。

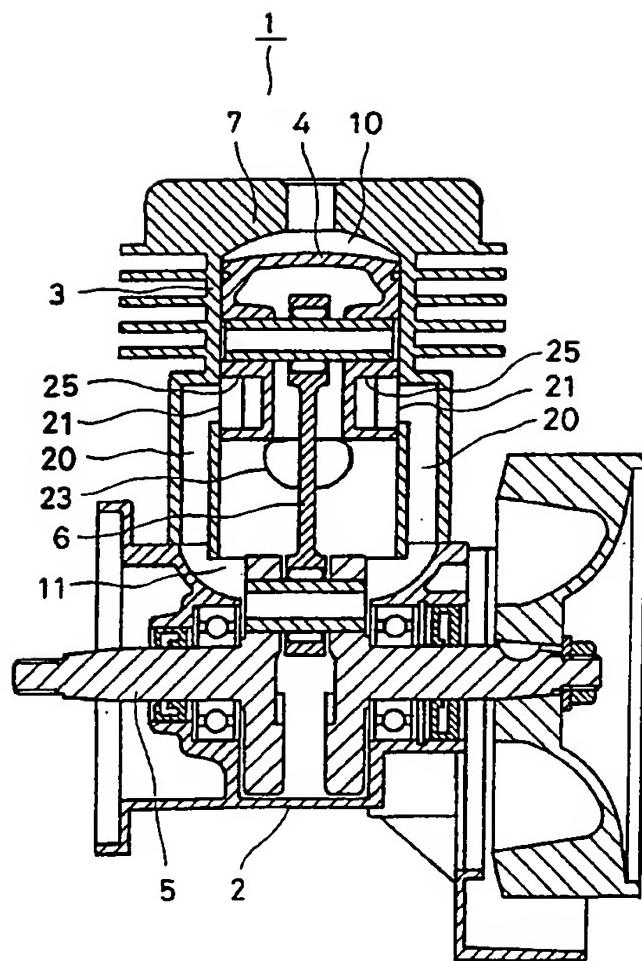
1/16

FIG. 1



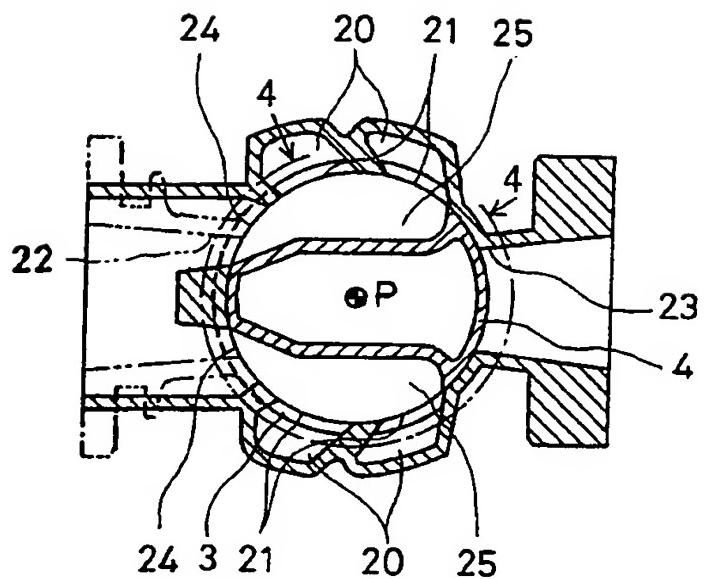
2/16.

FIG. 2



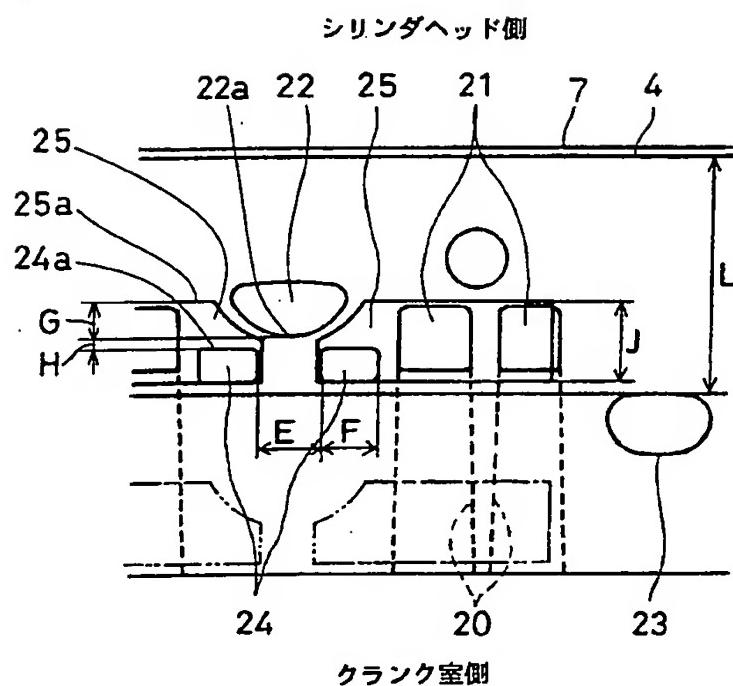
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FIG. 3



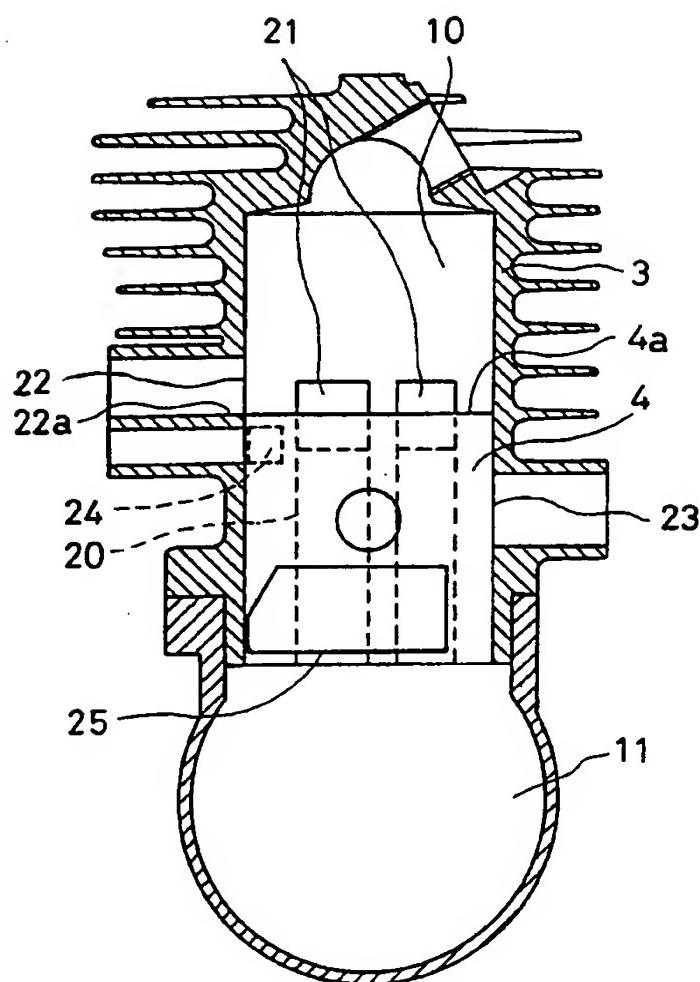
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FIG. 4



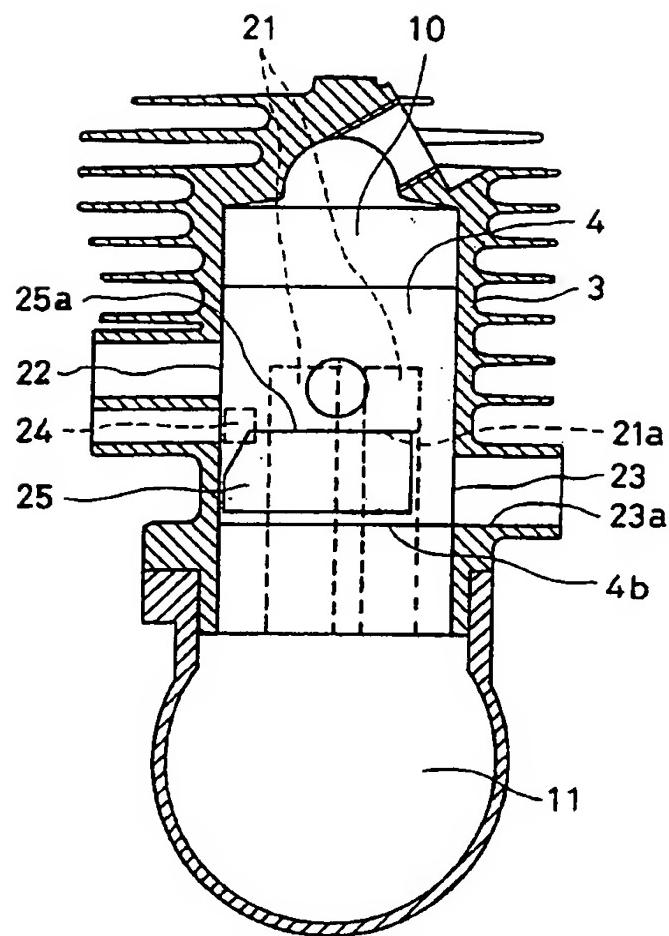
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FIG.5



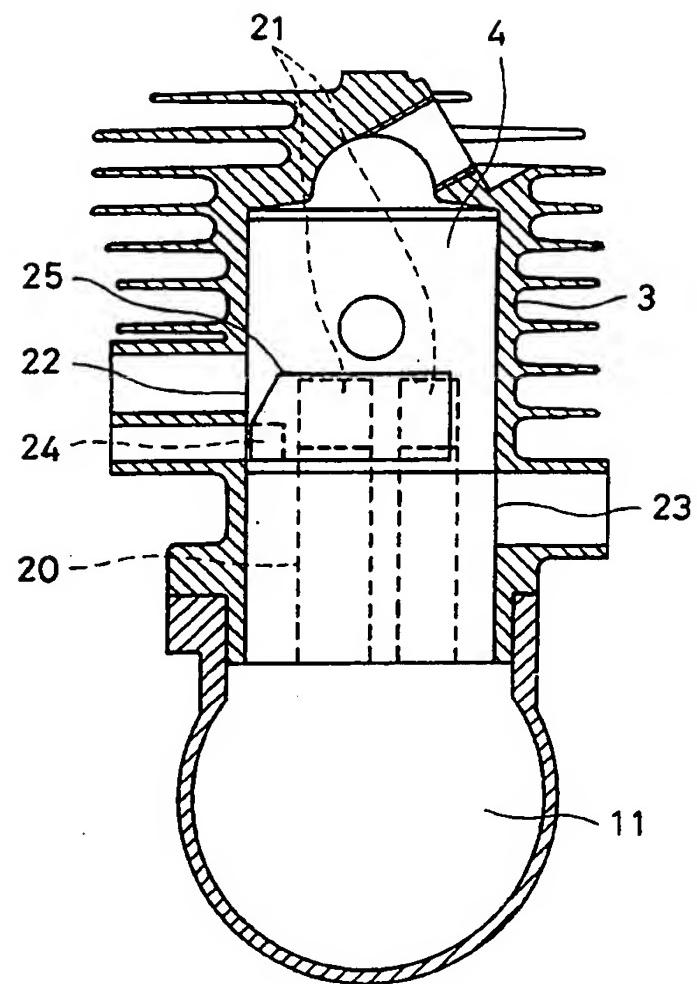
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FIG. 6



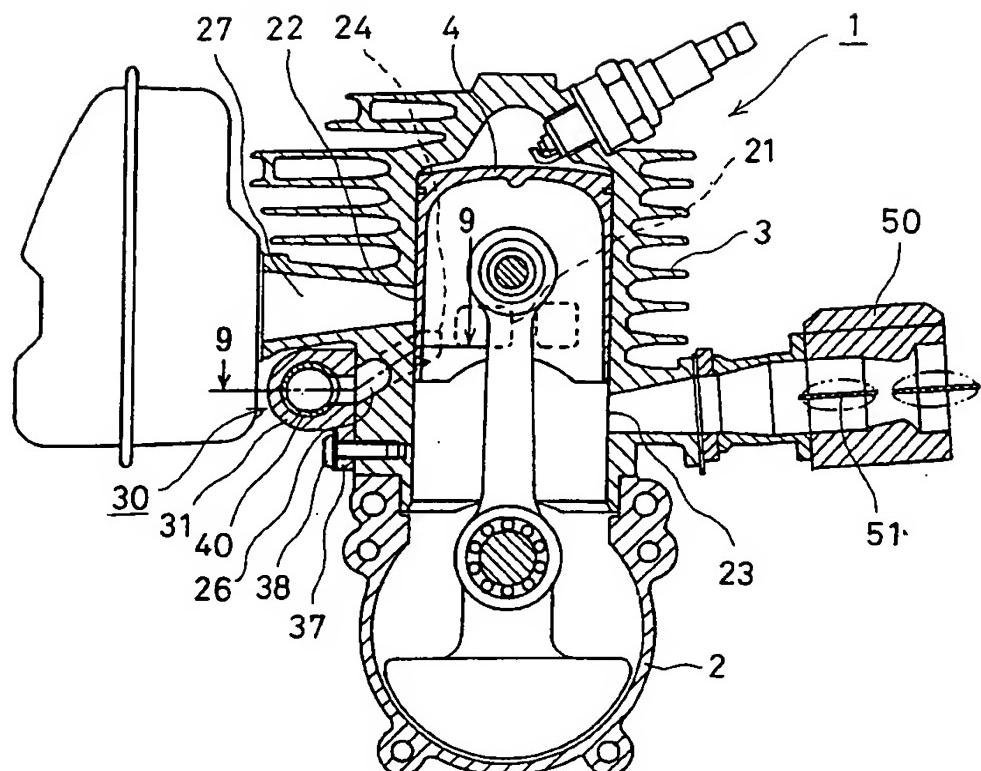
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FIG. 7



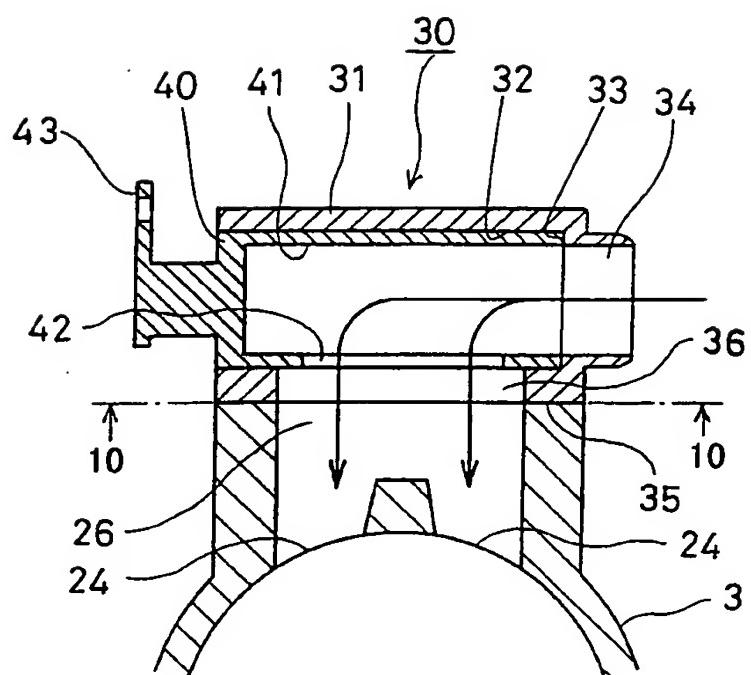
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FIG. 8



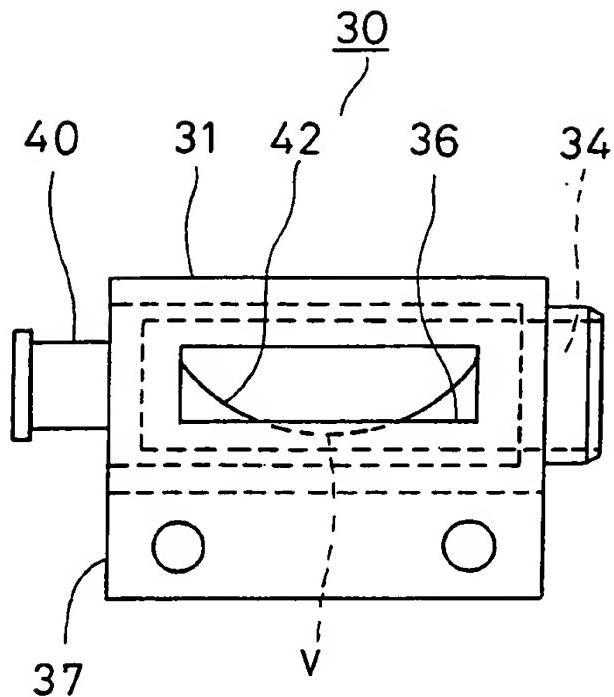
9/16-

FIG. 9



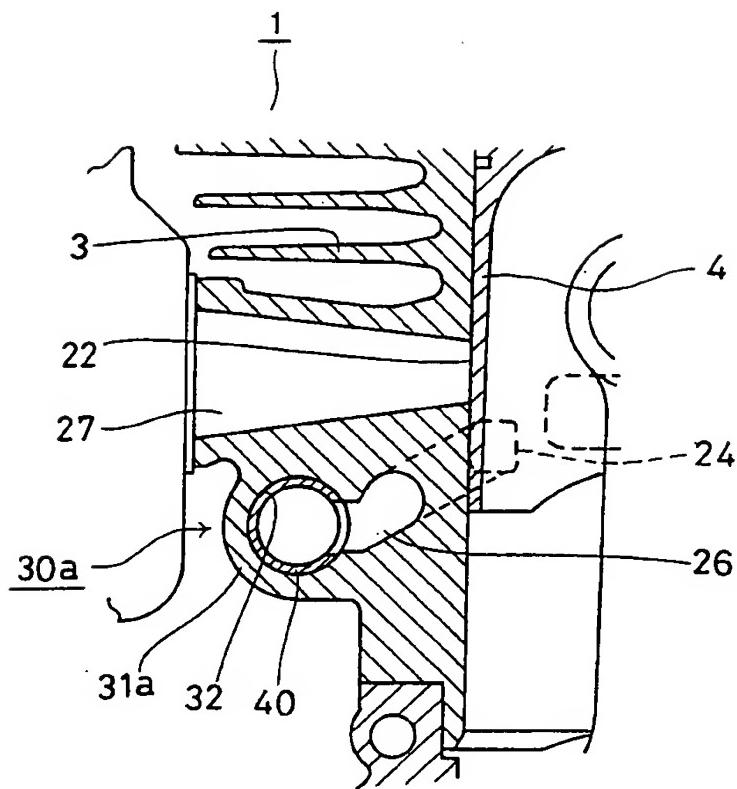
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FIG. 10



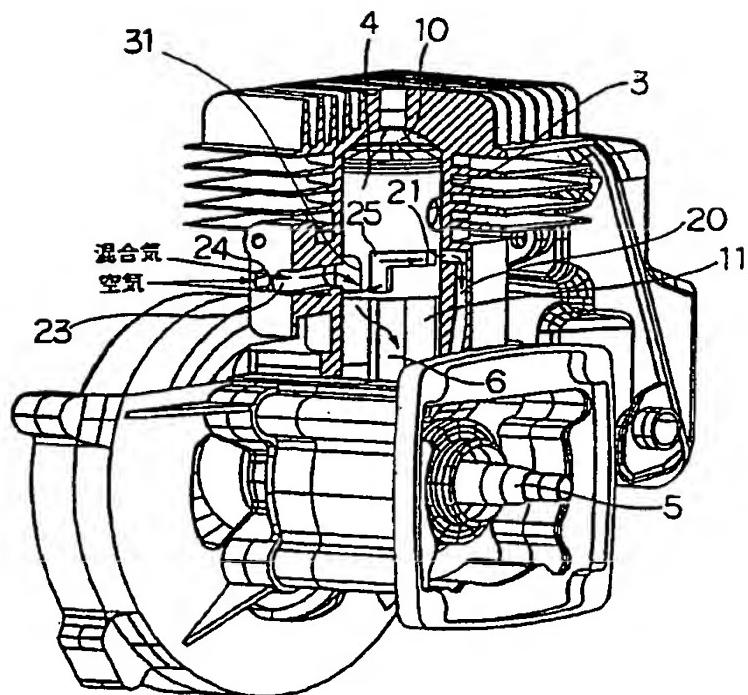
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FIG. 11



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FIG.12 従来技術



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FIG.13 従来技術

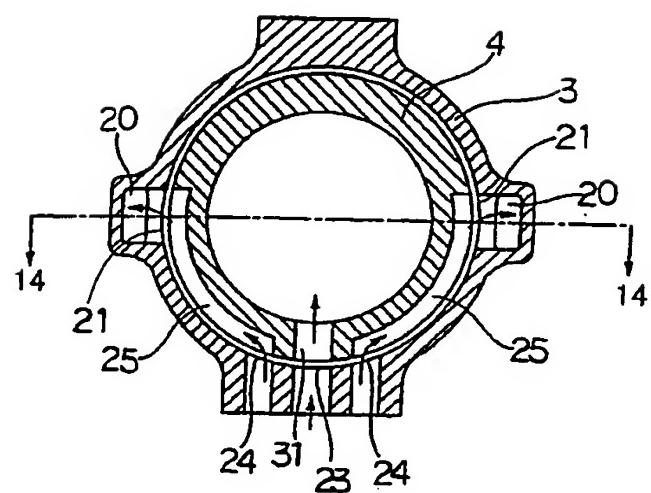
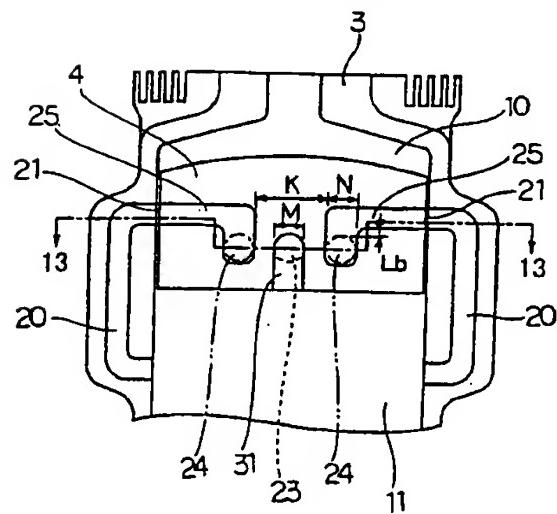
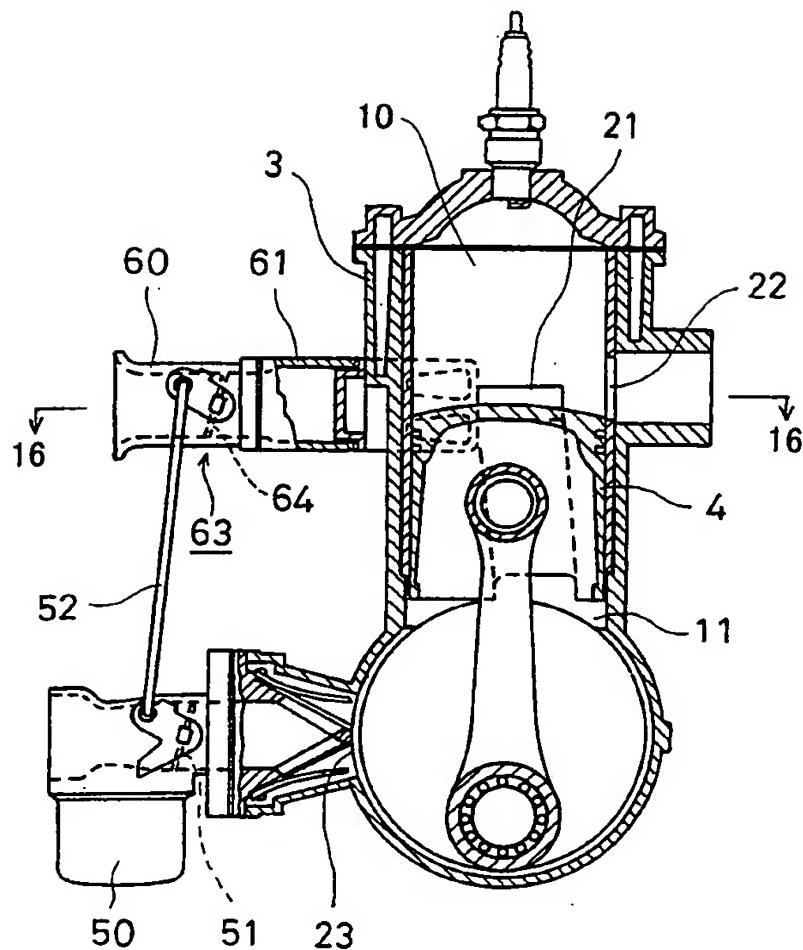


FIG.14 従来技術



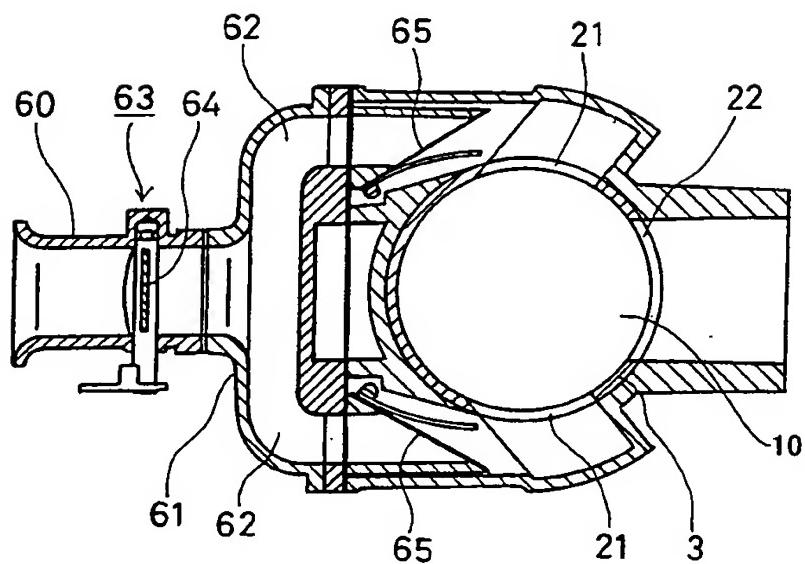
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FIG.15 従来技術



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FIG.16 従来技術



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FIG.17 従来技術

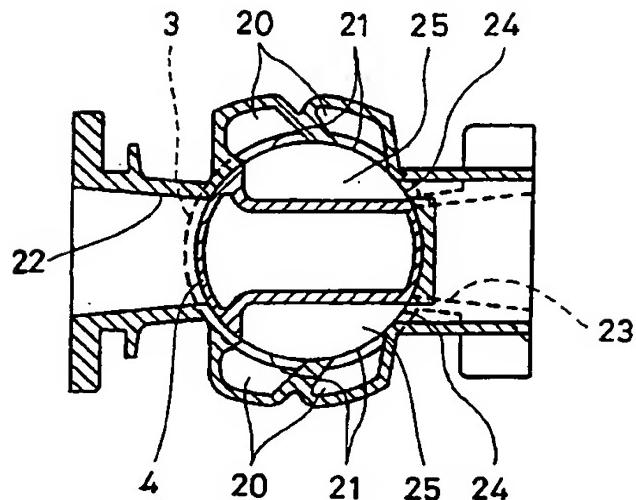
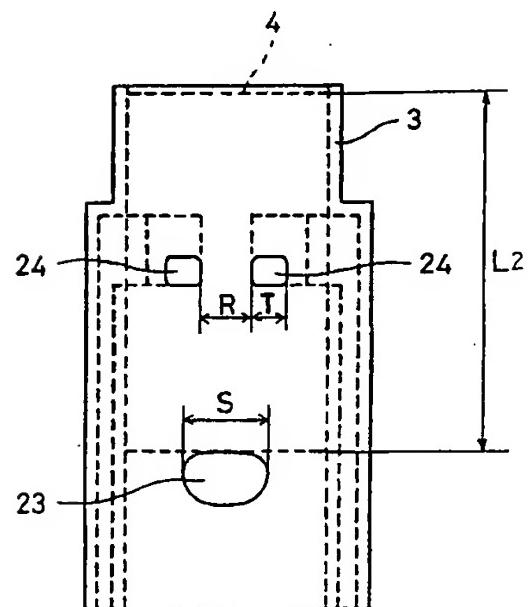


FIG.18



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP00/01943

A. CLASSIFICATION OF SUBJECT MATTER  
Int.Cl' F02B 29/06

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
Int.Cl' F02B 29/06, F02B 25/22Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
Jitsuyo Shinan Koho 1922-1996 Toroku Jitsuyo Shinan Koho 1994-2000  
Kokai Jitsuyo Shinan Koho 1971-2000 Jitsuyo Shinan Toroku Koho 1996-2000

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US, 5379732, A (NAGESH S MAVINAHALLY, PUSHPALATHA S MAVINAHALLY), 10 January, 1995 (10.01.95), Full text; Figs. 1 to 11 (Family: none)	1-4
Y	US, 4876999, A (ANDREAS STIHL), 31 October, 1989 (31.10.89), Full text; Figs. 1 to 4 & DE, 3735710, A	1
Y	JP, 7-269356, A (Ishikawajima Shibaura Machine Co. Ltd.), 17 October, 1995 (17.10.95), Full text; Figs. 1 to 5 (Family: none)	1
Y	JP, 51-19208, A (Yamaha Motor Co., Ltd.), 16 February, 1976 (16.02.76), Full text; Figs. 1 to 2 (Family: none)	1
Y	JP, 10-252565, A (Nippon Walbro. K. K.), 22 September, 1998 (22.09.98), Full text; Figs. 1 to 4 (Family: none)	3

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search  
27 June, 2000 (27.06.00)Date of mailing of the international search report  
11 July, 2000 (11.07.00)Name and mailing address of the ISA/  
Japanese Patent Office

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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/JP00/01943

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US, 4191141, A (WALTER FRANKE), 04 March, 1980 (04.03.80), Full text; Figs. 1 to 7 & DE, 2711641, A & DD, 134975, A & JP, 53-134111, A	3, 4